



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

CURRENT EDUCATIONAL LITERATURE.

CONDUCTED BY PRINCIPAL J. E. RUSSELL.

The Practical Pedagogical Training of Secondary Teachers in Germany.
J. Loos. Zeitschrift für die österreichischen Gymnasien. XLIV, 1, pp. 60-84.

At the request of the Austrian government L. visited the most important practical pedagogical seminaries in Germany. In a series of articles he describes and criticises the methods of these schools, and concludes that the best work is being done, not by university seminaries, but by those connected with *Gymnasien*.

1. *University Seminaries*: 1. The Ped. U. S. at Jena, which has a practice school of three elementary classes, meets three times each week in a *theoreticum*, a *practicum*, and a conference. Herbartian principles are followed. The work done in each recitation is recorded in a carefully kept "class book." Candidates attend model lessons given by principals, and are supervised in their own teaching by the director. In the *theoreticum*, methods of teaching are discussed and criticised by professors and students. Important features of the so-called *criticum*, or conference, are debates on the new arrangement of the devotional hour, readings from the "individuality book", discussions and criticisms of the candidates' teaching. 2. The Ped. S. at Leipzig admits twelve university students on presentation of a satisfactory thesis. The director, Prof. Masius of the University, is assisted by Prof. Richter, Director of the Royal Gymnasium. M. is a theorist, R. eminently practical. Each student under M. is required to write a thesis, and to teach, twice each term, a class of five or six gymnasial pupils. These trial lessons are followed by discussions. M.'s work is of little practical value. R., on the other hand, takes his students to his *gymnasium*, where they watch and freely discuss the methods employed. Prof. Hoffmann visits Leipzig schools, and also affords his students an opportunity of acquiring practice. Prof. Strümpell has a *practicum*, but no practice school. Dr. Glöckner, an enthusiastic follower of Ziller, interprets the works of Herbart. The author concludes: "Though Leipzig is very active in ped. matters, it does not concentrate its forces; it lacks system." 3. The Ped. U. S. at Heidelberg is in charge of Dr. Uhlig, Prof. of Ped. at the University, Director of the Gymnasium, and Editor of *Das humanistische Gymnasium*. Advanced students take part in the conferences, in which practical questions are discussed. The real *practica* are arranged as follows: On the day preceding a trial lesson, U. and the candidate visit the class to be taught, and observe the regular teacher's instruction. Then, the director outlines the work to be done, the methods to be employed, the importance of frequent repetitions, for example, the need of insisting on and giving accurate translations, etc. The trial lesson is given in the presence of director and regular teacher, who take active part whenever occasion demands. After the hour U. criticises the teaching, and gives advice. Upon completion of the university course, the candidate passes a state examination and becomes a *probandus* in a *gymnasium* (Official circular for Baden, March 11, 1891). The author highly approves of U.'s work, but regards its success as due to exceptional conditions that could not easily be created elsewhere. U. happens to be a university professor as well as director of a *gymnasium*.

II. *Seminaries connected with secondary schools.* The Berlin Royal Sem. receives ten men who have already passed the examination *pro facultate docendi*. Conference every two weeks. One *theoretical* and one *didactical* thesis required. Candidates spend six hours of each week in teaching in the *gymnasias* of Berlin. The writer attended a conference. Sophocles's *Antigone* (891-928) was translated. The director emphasized the importance of model translations. Then section 32 of Schiller's *Prakt. Pädagogik* On Teaching German, was taken up, and criticised by director and candidates. The S. at Stettin aims to train teachers during the *Probejahr*. Each member teaches ten hours each week. Conferences every two weeks. Since 1890 about thirty-five new gymnasial seminaries have been established. Of these L. mentions: (a) The S. of the *Königslädter Realgymnasium*, Berlin. During the first six months of the year, candidates attend model lessons. Then they alternate with teachers in giving trial lessons, for which careful preparation is made. In the conferences the teaching is thoroughly discussed. In order to get a good hold on the work done by a single class in one year, the candidate assists in teaching that class. In order to obtain a survey of the entire arrangement of studies in his special branch, as well as of the distribution of the material, and of the differences in instructing the different grades, the candidate spends 3-5 hours of each week, first in visiting, then in teaching, these classes. (b) *König Wilhelms-Gymnasium*, Berlin. Visitation of schools, model lessons, trial lessons, conferences, discussions of teaching, systems, and methods. (c) The Gym. Sem. at Stettin. The writer inspected the foil. documents: the *Arbeitsbuch* regulating the work of the sem.; the day book, recording the work done; the minute book containing subjects discussed and criticisms made; portfolios holding all the papers relating to the different candidates; annual theses; reports, etc. In one of the conferences a member discussed Kern's *Grundriss der Päd.*, On Discipline; another gave a summary of Willmann's *Didaktik*, II, 4. Debates followed. Then the trial lessons were criticised, (1) by the candidate himself, (2) by other members, (3) by the teacher in charge, (4) by the director. (d) The G. S. at Bonn. Candidates prepare a careful outline of the lesson as they purpose giving it before the class. This plan is thoroughly discussed in meeting. Trial lessons begin in June. In his theoretical course the director considers: the aims and problems of the seminary year; pre-conditions of successful teaching; conception and aim of instruction; the material and formal parts of instruction; manifold interest; attention; teaching as an art; selection, arrangement, and distribution of the subject-matter of instruction; nature and value of method; courses, stages, and forms of teaching; means; relation between instruction and discipline; the arrangement of educational instruction; the different educational means; principles of education; education by means of the teacher's personality.

F. T.

Reforms of Public Instruction in Hungary. S. F. SZ. B. Revue Internationale de l'Enseignement. Jan., 1893, pp. 51-73.

The twentieth annual report of the Minister of Public Instruction of Hungary presents a complete view of educational matters in that state. The reviewer has the following to say concerning the secondary schools: Before 1890, in the organization of the secondary schools, the principle of dualism was dominant. The *gymnasias* and the *realschulen* were kept distinct. By the law of 1883, however, students who had finished their studies at the *realschulen* were allowed to take the courses in law or medicine at the university, provided they passed an examination in Latin. Consequently the student from the *realschule* was admitted to these courses with but one classical language, while Greek as well as Latin was required of the student from the *gymnasium*. To remedy this inequality, the law

of 1890 allowed the student in the *gymnasium* to substitute for Greek the following courses: the reading of Greek authors in translation, the history of civilization, and drawing. This reform accomplished, the Minister of Public Instruction turned his attention to the unification of the secondary schools. There is in Hungary a hereditary prejudice against the *realschulen*. Until some fifty years ago Latin was the official language of the country in science, literature, and politics, and the *realschulen* were unknown. Naturally, therefore, the educated Hungarian still looks upon Latin as essential to general culture. In February of 1892 a convention of eminent educators met at Budapesth to discuss the practicability of combining the *realschule* with the *gymnasium*. The members without exception declared in favor of a single school of secondary education to be organized, with a few important modifications, after the *gymnasium*. In this unified school Latin will be required of all, drawing and the natural sciences will receive more attention than at present, and in the place of Greek may be substituted either French or some branch of the natural sciences not obligatory in the regular program. This reform also will probably be accomplished at an early date.

E. C. Hills.

The Laws of Brain Action Considered in Relation to School Work.

PROFESSOR CALDERWOOD. The Educational News (Edinburgh). Jan. 28, '93. pp. 60-61.

Regard to health must be a first concern in our educational system. Growth and healthy development of the child's brain determine the health of the whole body. Not only school-work but all the occupations of the day, are concerned with brain-work. In muscular effort nerve energy is diffused over the nerve system; in effort of thought it is more concentrated on the brain. The brain claims a fifth of the blood supply of the body and of that amount five times as much goes to the nerve cells as to the nerve fibres. Hence there is special need of guarding against undue nervous strain, particularly of the brain. The brain is in ceaseless action, but no strain is implied so long as there is no constraint. But attention requires effort, and this induces fatigue. Distinct centers in the brain, quite unknown to the agent, are to be brought into regulation, for control of the eye and ear, for use of speech and for effective observation. Brain-work becomes easier, over pressure, however, may easily become a reality. The brain approaches its full proportions about the seventh or eighth year; earnest study may not begin earlier. To send children early to school is neither an educational nor a health gain. The infant room should be largely a play-room, the lessons largely amusements, and the whole arrangements flexible to the utmost degree. All that we want in such a case is a competent teacher, whose eye is quick to mark signs of weariness. At seven or eight years "task work" should begin. The stimulus and the restraint of the school-room are equally healthful. Weariness arising from muscular effort demands rest, but in nervous fatigue change is rest. It can be found in school-hours. To change from one subject to another, from lessons to singing, from study to manual training, satisfies the law of rest. There is little gain in weary work. While our school programmes are arranged for children of ordinary health, there are two groups of exceptional cases—the poorly fed, and the nervously excitable. The healthy development of the children is an urgent matter for the State; for the one group food and fun should be provided liberally, and for the other there is need of the training and bracing influence of school, along with the limited strain of work, a larger proportion of exercise in the open air, and the calming influence of a judicious guide.

J. E. R.

The Teacher's Test of His Pupils' Work. PRINCIPAL GEO. A. INCH. *The Educational Review* (St. John, N. B.). Feb., '93. pp. 175-178.

Under this title are included daily tests, or recitations, and review tests, more commonly termed examinations. The object of these tests is twofold: to ascertain whether the assigned work has been prepared, and also to be sure that the instruction has been effective. The work of teaching and testing must go hand in hand, since instruction necessarily proceeds from the known to the unknown. Therefore, skill in testing is an essential in all successful teaching. Has the pupil clear conceptions of the subject? Can he give to those conceptions clear expressions? Has he acquired mental power in the process? These are what the teacher seeks to learn by means of his tests. "Testing is the reverse of teaching in this respect: in teaching we try to impart ideas first then ask for their expression; in testing we must first ask for the expression and through it judge of the ideas." Let the expression be the result of the child's own thinking, rather than an exercise in memorizing. The importance of the part that the memory plays in the child's education is not to be underrated, but no teacher can feel sure that the pupil has thoroughly grasped a new thought unless the pupil expresses it in his own language. Again, be sure that your tests really test. Discover who have prepared the lesson and who have not. "Don't waste school time in telling or even teaching a thing over and over to those whom the tests have floored. Require them to know what has been reasonably taught. Be inexorable here. Vain repetition is a crime, it steals time and destroys opportunity. Let the school conviction of coming to time in all exercises, especially in preparing lessons, grow into a habit and stay a habit." If it is asked how a teacher is to find time for so many tests, the answer is: each successful teacher will invent his own ways. As to review tests, in no other way can a teacher be sure that what has been taught has been retained. Not only is it wise to let the pupils know that a test is surely coming, but when it is to come. It will lead the pupils to question themselves as to whether they know the subject or not. Don't be afraid of cram, —that would imply that your tests were not of the right sort. It is a mistake to hold that testing takes time from teaching. If properly handled these tests teach by cultivating original thinking and expression, and also by the corrections marked on the exercises which should be returned. Both oral and written tests are useful and should be varied. If you wish to test a child's ability to read intelligently, give him a passage with which he is not familiar to examine silently. Then let him express its meaning in writing and finally have him read the passage aloud. It is not to be denied that this work imposes a great demand upon the teacher's time and strength, but the teacher, of any grade in which the pupils write, who does not require and examine a fair number of these written tests, is doing slipshod, indefinite work. But there are examinations and examinations, and if some are useless and vicious, others are useful and righteous. There is a conspicuous distinction between the teacher's examination to ascertain the effectiveness of his own teaching, and an outside examination to settle some outside question, as grading, or standing, or prizes.

Lucy M. Barto.

Methods of Modern Language Instruction in Prussian Realschulen. H. BRETSCHNEIDER. *Zeitschrift für lateinlose höhere Schulen.* Jan.-Feb., 1893. pp. 109-114.

The writer describes his plan of conducting classes in English, as representing a middle ground between the "modern" and the old time grammatical method. One thing is to be done at a time, either grammar (including pronunciation) or reading. The student cannot have at the same time equal interest in form and context; the sentences from which he studies

form should present no other difficulties. At the same time, as his capabilities increase, so should the demands made upon him. At the first lesson, the importance of the English language is first called to the student's attention, and then instruction begins, the author's text-book being used. The first word in Lesson I., *a*, is written on the board with the German equivalent following, and is pronounced in chorus; the same is done successively with the other words. The meanings are erased after being learned; by the end of the lesson the pupils can understand short sentences constructed from these words, and have learned the rule that accented vowels in open syllables are long. The accompanying home work is to enter the words in a copy-book and to fix them in the memory. Each succeeding lesson begins with a review of that preceding. To avoid monotony the following exercises are employed: a. Written translation; b. Reading by the teacher, books closed; the student to listen and afterwards to reproduce; c. Oral translation from the German into the original, with the aid of (a); d. Oral translation into the original, the teacher giving out sentence for sentence; e. Complete memorization of the sentences; f. Written re-translation, using note-books or loose sheets; g. Written re-translation in copy-book.

This method is carried through two terms and a part of the third in the first year, with the exception that after the first fourteen lessons, the words are learned at home and only pronounced in the class-room. The words and phrases learned are those of every-day household and business life, a point which cannot be too much emphasized. Our pupils need small coin for every-day use.

With lesson 32, reading begins and grammar is let alone for a while. The forms now present few difficulties; only one trouble is found: the irregular verbs. These are mainly acquired through reading, and can be disposed of entirely at the beginning of the second year. The selections must be studied thoroughly; the following exercises may be carried out: 1. Oral translation; 2. Written translation; 3. Oral spelling of difficult words; 4. Conjugation of verbs occurring in the lessons, objects and modifying phrases being attached; 5. Written analysis by question and answer; 6. The same, oral, (a. with open, b. with closed books); 7. Review reading, only the hard places translated; 8. Reading by the teacher, books closed; the student to listen and afterwards to reproduce; 9. Oral re-translation, with the aid of (2); 10. Oral re-translation, the teacher giving out the sentences; 11. English dictation in note-books or on loose sheets; 12. English dictation in the copy-books; 13. Reproduction of the story in connected language; 14. Complete memorization of the text; 15. Written re-translation in note-books; 16. Re-translation in copy-books; 17. English paraphrase. Of course not all these exercises will be used with any one piece.

The second year begins with the irregular verbs; then reading for a while; then the final attack on the grammar. From now on the student's reading is much less disturbed by grammatical difficulties, which have been mastered by repeated references during the reading-lessons and by the translation of the consecutive German-English exercises. A selection from the reading-book is studied, read and translated aloud, and occasionally translated in writing, the latter being more instructive than mere oral rendering. Illustrations of grammatical rules are noted and explained, and the sentences embodying them are copied. In certain cases the whole piece is altered from the first to the third person, or the reverse; this can be done in various ways: with the book open; with the aid of the German translation in the note-book; freely, from memory, changes and abbreviations being allowed or prescribed. In the third year, besides what has been already mentioned, English correspondence is studied.

For practical reasons, the author recommends that Irving, Macaulay and Scott, be less used as school texts, since their vocabulary is not that of English every-day life. He would prefer Franklin's Autobiography, Dickens's Christmas Carol, or a novel of Marryat or Miss Edgeworth.

Wm. Strunk, jr.

The Teaching of Mathematics. W. H. H. HUDSON. The Educational Times (London). March, 1893. pp. 135-139.

All mathematical teaching should be conducted so as to accord with the fundamental laws of pedagogy; of these the one first in importance is: (1) The understanding of the pupil is to be employed throughout. Progress in mathematics is peculiarly hampered by the substitution of memory and imitation for understanding. The multiplication table is often learned by heart, parrot-like, without being formed gradually by the child. Definitions and propositions in Euclid are learned verbatim in like manner. Formulæ are allowed to be used without being understood. All this is contrary to the first law of teaching; it is calculated to stunt rather than develop the mental powers. Principles, maxims, theorems, formulæ, definitions should never be given to a learner without his intelligent comprehension of them. In no subject better than in geometry can the joy of the discoverer be obtained. It is possible to propose to the mere beginner problems suited to his nascent powers, yet requiring their exercise. Some of the propositions of Euclid will seem unnecessary to a pupil who has had a preliminary training in the actual use of the ruler and compasses. Here is an opportunity for instruction in the nature of proof; fallacies may be propounded and exposed, and so early ideas of logic may be instilled. "Riders" may be used from the very outset; nay, even the propositions may be regarded as riders, the text being consulted only after real effort. It may be pardonable to tell the beginner, as facts to be hereafter proved, some properties for the sake of simple deductions from them. The teacher should not do for the pupil what the pupil can do for himself. Self reliance should be cultivated, but the pupil should not be left in quite the position of a first discoverer. The teacher is to direct, to warn against dangers, to facilitate progress, but the pupil must make the progress himself. A mistake may be pointed out; the corrections should generally come from the pupil. The teacher should not set, and should restrain the pupil from proposing to himself, exercises beyond his strength or his knowledge. To strain the mental powers is not to develop them. (2) There is a certain way in which the mind acts, and this cannot be departed from without injury. The primary notions of mathematics are obtained through the senses. It is impossible to acquire them otherwise. Begin to teach arithmetic by counting actual objects, not by a rehearsal of names. Use visible illustrations of fractions. Begin to teach geometry by models of cubes, etc. Rule lines with a ruler and draw circles with compasses. But do not use these visible helps after they have served their purpose. The notions should be formed so strongly that the mind's eye sees them when the things are not present in later reasonings. He who can draw a good circle need not; he who cannot, must. The badly drawn circle does not give a wrong impression to the pupil who is full of the true idea of a circle; it does to others. Progress in mathematics consists in the combination of comparatively few fundamental conceptions. Do not substitute words for these conceptions. Do not some of our pupils gabble through Euclid without really knowing the meaning of "bisect," because they have never really bisected anything, though they have learned the verbal definition? Such boys by becoming habituated to the use of words without meanings have weakened their mental powers, while they have lost the natural curiosity of childhood. The next general law of education is (3) continuity. The new and unknown must grow out of the old and known. The old and known must be soundly known and firmly grasped. The pupil should have to unlearn nothing. The teacher should have a grasp of subjects beyond what he is actually teaching, that he may prepare the way. The teacher of arithmetic should be watchful to assist in the transition to algebra, and the teacher of algebra should bear in mind the subsequent study of Differential Calculus. After the three great laws of education noted above, some minor maxims may be deduced.

(a) Principles are more important than methods and formulæ. The teacher must see that the pupils understand the language of axioms and conventions, and these must be laid down authoritatively. Do not disguise from them that these are conventions, nor place conventions on the same footing of necessity as axioms. Upon these axioms are based certain doctrines called principles. The principles, few in number, form the bases of methods innumerable. To teach each of these separately without system or coördination is an impossible task. What the learner has to do is to select and combine the appropriate principles; the power to do this is freedom. (b) Make slow progress with firm steps. No pupil should be asked to take a step greater than his stride. Mathematics need concentrated attention, but, in early stages, do not demand prolonged effort. Though slow the progress should be continuous. The exercises should form a ladder, and examples should guide to new processes, as well as facilitate processes. (c) Vary non-essentials. In geometry invert the figure, etc., taking care not to illustrate particular cases. In algebra use various letters, also show that general propositions are true for complex expressions.

George G. Brower.

Notes on the Mathematical Curricula in Prussian Secondary Schools. DR. HOLZMÜLLER. Zeitschrift für lateinlose höhere Schulen. Jan.-Feb., 1893. pp. 97-109.

In considering a mathematical course, we must remember what mathematics should give the student for his after life: logical training, a knowledge of space, facility in calculation, acquaintance with mathematical symbols, a comprehension of the means of exhibiting tri-dimensional relations on a plane, a clear understanding of first principles, and an insight into elementary mathematical procedure. The point is not to know formulas but to think mathematically, hence for purposes of *culture*, the selection of matter to be studied is indifferent. This allows that preference be given to the practical and useful. The schools are not seminaries for future mathematicians, but contributors to general education. Hence the author has advocated the omission from gymnasium courses of indeterminate equations, continued fractions, maxima and minima, permutations and combinations, probabilities, and analytical geometry. With these gone, other subjects will be better understood, from the greater amount of drill possible.

For mathematical purposes, the nine classes of the school may be considered in three groups of three each. In the under classes practical arithmetic and empirical geometry have their place. The middle group is characterized by the introduction of abstract arithmetic. For the practical purposes of many occupations an elementary knowledge of mensuration is necessary. This involves cube root and logarithms; the latter have numerous other applications, and interest the pupil moreover as showing how mathematical processes may lighten labor. It would be useful to add parallel perspective and an acquaintance with planes and elevations. The rudiments of trigonometry (right and isosceles triangles; sine, cosine, tangent) may be taught in the sixth year. These subjects cannot be taught and demonstrated with scientific vigor, it may be; but what teacher scruples to tell his classes that π is an incommensurable, and what teacher attempts to prove it to them? Yet such knowledge is useful. So too, the use of logarithms is taught earlier than their calculation. It is not even necessary to "prove" that minus times minus equals plus. If there is to be strictness, let it be in the drawing of diagrams.

Concrete instances are to be continually employed; every new term is to be illustrated by a concrete object. The first lesson in solid geometry should be taught from an actual cube. Drawings of solids should be made accurately, with straight-edge and compasses; occasionally the whole hour could be devoted to stereometric drawing.

Wm. Strunk, jr.

On New Methods and Means of Latin Instruction. SCHLEE OF ALTONA. Pädagogisches Archiv (Stettin). Feb., 1893. pp. 73-82.

The movement for school reform has brought about an agitation concerning instruction in Latin. The courses of study for 1891 demand that the pupil be taught to read understandingly the best classical authors, and be given logical grammatical discipline. This has hitherto been accomplished by thorough drill in translating from German into Latin and from Latin into German. But the examinations have been and still are of such a kind as to make the former exercise of primary importance.

In view of the fact, however, that the number of hours for instruction in Latin has been reduced, the question arises whether knowledge of the chief classical authors as well as facility in writing Latin is attainable. Earnest advocates of the classical languages answer the question in the negative. In case this answer is correct, it is beyond question that the "art of writing Latin" must yield, and more time be given to reading. A recent writer suggests that all translation into Latin and Greek whether as a means to an end or as a class-exercise be entirely forbidden. Grammar is to be studied from examples in classical texts. The author of the article doubts the wisdom of this method, but asserts that such things can be tested only by actual practice.

Methods may be divided into two classes—deductive and inductive. In the deductive method, the pupil is given paradigms, vocabularies and grammatical rules, and with these he forms words and sentences and builds up the language for himself. Until lately it was considered an axiom in Latin instruction that facility in writing Latin exercises and translating into Latin from dictation was the measure of the readiness with which a pupil would understand classic authors. It is more correct to say, that if facility in writing *and* reading Latin is to be attained, the pupil must have frequent practice in *both*.

"*Bellum Helvetiorum*," by Dr. H. Baethke (Lübeck, 1892, xv, 90), is a book in which the pure inductive method is attempted. The first twenty-nine chapters of Cæsar are taken as a basis. Most emphasis is laid on analysis; synthesis is confined to word-formation, and practice in declension and conjugation. Translations into Latin are to take place from the beginning, but rather to impress the text and call attention to the forms and combinations, than to enable one to write Latin easily. The vocabularies contain about 7—800 words. The grammar work of the second year is to include syntax, the use of conjunctions, etc. As the abl. abs., acc. with inf., sentences with *ut*, and indirect discourse have already been discussed the first year, the most difficult parts of Latin grammar are thoroughly impressed. The author of the article thinks that the book is to be recommended for private instruction, but cannot be introduced into the public schools because it would not prepare for the examinations.

In conclusion there is a brief discussion of Wilhelm Wartenberg's "Introductory Latin Book". The vocabulary is confined to Cæsar. The book begins with the pres. ind. and the acc. of the first or second declensions, then follow the pres. subjunctive, the other tenses, etc. The development of the verb constitutes "the backbone" of the book; in connection with this the rest of the accidence and the important principles of syntax are gradually introduced. In the main the book is to be praised, and might be used with success in the gymnasia.

A. F. Kuersteiner.

Instruction in Zoology in the German Gymnasia. E. REBMANN. Pädagogisches Archiv (Stettin). Feb., 1893. pp. 65-73.

Part of this article is devoted to criticism of an attack on the German gymnasia. Criticism is omitted, only the positive views are presented.

Teachers of zoology still labor under great disadvantages. Most text-

books devote too much space to classification. Every teacher knows from experience that mere classifying is of little interest to pupils, especially after the instruction in physics has begun. We hope that the day is not distant when the conviction will become general, that language and mathematics should, throughout the gymnasium course, be properly balanced by the study of natural history, especially of biology. Yet instruction in zoology is of little value, if the teacher does not know how "to set it into the midst of life". The animal must be considered in no other relations than its natural relations. This is the advantage which the new method has over the old.

To analyze plants or classify bugs demands certain logical operations, for which any other study offers equal scope. But to consider any creature, be it plant or animal, with all its modifying influences, to trace all the actions and reactions and individual adaptations, to discover the numerous threads which connect animal with animal, plant with plant, and animal with plant, this is to think in a manner truly "*naturwissenschaftlich*". An animal or plant should never be studied exclusively by itself, but all of its biological relations should be clearly set forth; in other words, biology itself should be taught, but of course not by classification, but "*by paradigms*" (*paradigmatisch*). Also, as a matter of course, the subjects chosen should be adapted to the capacities and limitations of the pupils.

The foundation of such study must be a clear conception of form, and for this reason instruction in zoology should be begun with "incessant descriptions" by the children. After morphology has been studied in this manner for the first three years, it may then be attacked in a different way. For instance, a careful study should be made of a single vertebrate, and then the modifications of form in other vertebrates under various influences be taken up.

The order in which the animals are to be studied is of secondary importance. But at all events, instruction "half-way reasonable" will begin with mammals. Within this limit, however, the succession of subjects is rather immaterial.

The demand that we pass from the known to the unknown is not always to be followed. It is more interesting to the pupil to begin with the wolf or the fox and trace the effects of domestication, than to start with domestic animals and work backward. But if we begin with the known, man is certainly to be studied first.

A. F. Kuersteiner.

BOOKS RECEIVED.

From American Book Company :

Robinson's New Rudiments of Arithmetic. pp. 224. Price 30 cents.

Robinson's New Primary Arithmetic. pp. 80. Price 18 cents.

Robinson's New Practical Arithmetic for Common Schools and Academies. pp. 416. Price 65 cents.

Marmion, A Tale of Flodden Field, by Sir Walter Scott, Bart. pp. 240. Price 20 cts.

From Lee & Shepard :

Physiology for Boys and Girls. A Revised Edition of How to Keep Well : A text-book of health for use in the lower grade of schools with special reference to the effects of alcoholic drinks, tobacco, and other narcotics on the bodily life, by Albert F. Blaisdell, M.D. pp. 246.

Young Folks' Physiology. A revised edition of Our Bodies and How We Live. An elementary text-book of physiology and hygiene with special reference to the effects of stimulants and narcotics on the human system, for use in schools, by Albert F. Blaisdell, M.D. pp. 412.

Physiology for Little Folks. A revised edition of Child's Book of Health in Easy Lessons, for schools, by Albert F. Blaisdell, M.D. pp. 136.